CLEAN VERSION OF AMENDMENTS IN SPECIFICATION AND CLAIMS

IN THE SPECIFICATION

The paragraph beginning on page 3, line 9 and ending on the same page, line 23 has been amended to read:

We have found that this object is achieved by providing PARP homologs, preferably derived from human and non-human mammals, having an amino acid sequence which has

a) a functional NAD^+ binding domain, i.e. a PARP "signature" sequence having the characteristic GX_3GKG motif (SEQ ID NO:29);
and

b) especially in the N-terminal sequence region, i.e. in the region of the first 200, such as, for example, in the region of the first 100, N-terminal amino acids, no PARP zinc finger sequence motifs of the general formula

$$CX_2CX_mHX_2C \text{ (SEQ ID NO:30)}$$

in which
m is an integral value from 28 or 30, and the X radicals are, independently of one another, any amino acid;

and the functional equivalents thereof.

The paragraph beginning on page 4, line 14 and ending on the same page, line 23 has been amended to read:

The functional NAD^+ binding domain (i.e. catalytic domain) binds the substrate for poly-(ADP-ribose) synthesis. Consistent with known PARPs, the sequence motif $GX^1X^2X^3GKG$ (SEQ ID NO:29), in which G is glycine, K is lysine, and X^1, X^2 and X^3 are, independently of one another, any amino acid, is present in particular. However, as shown, surprisingly, by comparison of the amino acid sequences of the NAD^+ binding domains of PARP molecules according to the invention with previously disclosed

human PARP1, the sequences according to the invention differ markedly from the known sequence for the NAD^+ binding domain.

The paragraph beginning on page 6, line 15 and ending on the same page, line 31 has been amended to read:

PARP homologs which are particularly preferred according to the invention are the proteins human PARP2, human PARP3, mouse PARP3 and the functional equivalents thereof. The protein referred to as human PARP2 comprises 570 amino acids (cf. SEQ ID NO:2). The protein referred to as human PARP3 possibly exists in two forms. Type 1 comprises 533 amino acids (SEQ ID NO:4) and type 2 comprises 540 amino acids (SEQ ID NO:6). The forms may arise through different initiation of translation. The protein referred to as mouse PARP3 exists in two forms which differ from one another by a deletion of 5 amino acids (15 bp). Type 1 comprises 533 amino acids (SEQ ID NO: 8) and type 2 comprises 528 amino acids (SEQ ID NO:10). The PARP-homologs of the present invention differ in their sequences significantly over said PARP protein of Arabidopsis thaliana (see above). For example, PARP2 and PARP3 do not comprise the plant PARP specific peptide sequence AAVLDQWIPD (SEQ ID NO:31), corresponding to amino acid residues 143 to 152 of the Arabidopsis protein.

The paragraph beginning on page 25, line 29 and ending on the same page, line 35 has been amended to read:

Variant human PARP2a: Deletion of base pairs 766 to 904 (cf. SEQ ID NO:1). This leads to a frame shift with a new stop codon ("TAA" corresponding to nucleotides 922 to 924 in SEQ ID NO:1).

Variant human PARP2b: Insertion of

5'- gta tgc cag gaa ggt cat ggg cca gca aaa ggg tct ctg -3' (SEQ ID NO:32)